

INTRODUCTION¹

BY JOHN TYNDALL

WHEN from an Alpine height the eye of the climber ranges over the mountains, he finds that for the most part they resolve themselves into distinct groups, each consisting of a dominant mass surrounded by peaks of lesser elevation. The power which lifted the mightier eminences, in nearly all cases lifted others to an almost equal height. And so it is with the discoveries of Faraday. As a general rule, the dominant result does not stand alone, but forms the culminating point of a vast and varied mass of inquiry. In this way, round about his great discovery of magneto-electric induction, other weighty labours group themselves.

His investigations on the extra current; on the polar and other condition of diamagnetic bodies; on lines of magnetic force, their definite character and distribution; on the employment of the induced magneto-electric current as a measure and test of magnetic action; on the revulsive phenomena of the magnetic field, are all, notwithstanding the diversity of title, researches in the domain of magneto-electric induction.

Faraday's second group of researches and discoveries embrace the chemical phenomena of the current. The dominant result here is the great law of definite electro-chemical decomposition, around which are massed various researches on electro-chemical conduction and on electrolysis both with the machine and with the pile. To this group also belong his analysis of the contact theory, his inquiries as to the source of voltaic electricity, and his final development of the chemical theory of the pile.

His third great discovery is the magnetisation of light, which I should liken to the Weissshorn among mountains—dwggh, beautiful, and alone.

v. The dominant result of his fourth group of researches is the Discovery of diamagnetism, announced in his memoir as the "Summary" and the concluding passages of